

insert a2 > OFDM SIGNAL ORGANIZED SO AS TO SIMPLIFY RECEPTION

6/21/04
bn

BACKGROUND OF THE INVENTION
The field of the invention is signal transmission using simultaneously several orthogonal (or quasi-orthogonal) carrier frequencies, each coded by distinct data elements.

5 These signals are generally called OFDM (Orthogonal Frequency Division Multiplex) signals. This type of OFDM signal is used for example in the digital broadcasting system described particularly in French patent FR-86 096322 filed on July 2 1986, and in the document entitled "Principes de modulation et de codage canal en radiodiffusion numérique vers les mobiles" (Principles of channel modulation and coding in digital radio broadcasting to mobiles) (by M. Alard and R. Lassalle; U.E.R. review No. 224, August 1987, pp. 168-190) and known under the name of the COFDM (Coded Orthogonal Frequency Division Multiplex) system.

10 15 This COFDM system was developed largely as part of the European DAB (Digital Audio Broadcasting) project. It is digital. More generally, it enables the transmission of any type of digital or analog signal (sampled but not necessarily quantified).

Special demodulators must be used to demodulate these digital signals with frequency multiplexing. For example, this type of demodulator is described in the above mentioned patent document FR-86 09622.

20 It is known that one essential element of a multicarrier signal receiver is the demodulation circuit which extracts raw information carried by each carrier taken separately, from the received signal (the multiplex of orthogonal carriers).

25 Conventionally, this circuit carries out mathematical transform the signal, and for example a Discrete Fourier Transform (DFT). Many other transforms may be used. However, this type of circuit will be referred to as a DFT circuit in the following, for non-restrictive simplification purposes.

30 The complexity of this type of circuit is proportional firstly to the number of frequencies transmitted simultaneously (frequency dimension), and secondly to the duration T, of transmitted symbols (time dimension). This DFT circuit is a complex and therefore expensive element. Therefore, it is essential that this circuit should be

IN THE SPECIFICATION

At page 1, between lines 1 and 2, please insert the following paragraph:

sub D

CROSS-REFERENCE TO RELATED APPLICATIONS

OA

The present application is a continuation of Patent application Serial No. 08/765,162 filed on December 13, 1996 and completed on March 19, 1997, entitled OFDM SIGNAL ORGANIZED SO AS TO SIMPLIFY RECEPTION, which was a 371 National Phase application of PCT/FR95/00775 filed June 17, 1995.

IN THE CLAIMS

Please cancel claims 1-13 without prejudice, and add new claims 14-90 such that claims 14-90 read as follows:

14.(New) A method for transmitting and receiving at least two independent source signals, comprising the steps of:

obtaining said at least two independent source signals, in the form of independent series of coded bits;

assigning a determined frequency band to an OFDM signal to be transmitted, several approximately orthogonal carrier frequencies being defined in said frequency band;

breaking down said frequency band into at least two frequency subbands, each of said subbands comprising a set of said approximately orthogonal carrier frequencies;

assigning each of said frequency subbands to one of said independent source signals; selectively modulating the carrier frequencies of each frequency subband with coded bits of the corresponding source signal;

grouping said modulated frequency subbands to form a modulated OFDM signal;

tuning and transmitting the modulated OFDM signal as a whole;